

US Serial No. 09/758,741

Attorney Docket No. 1366

REMARKS

Claim 1 has been amended to describe the article as having a bore for flowing molten metal therethrough and the insulating coating covering substantially all of the first outer surface. Support for this amendment may be found, for example, at page 5 lines 8-9 with reference to Figure 1, describing a submerged entry shroud having a bore for flowing molten metal therethrough and showing the insulating coating as covering the first outer surface. Claims 14 - 18 have been canceled. New claim 19 includes original claim 1 and an insulating coating comprising insulating microspheres. The use of insulating microspheres is taught in the specification and in claim 5. New claims 20-23 depend from claim 19 and correlate with claims 2, 3, 5 and 6, respectively. New claim 24 includes amended claim 1 and requires an inner surface defining a bore for flowing molten metal therethrough. An inner surface defining a bore is taught, for example, in Figure 1.

Claim Objection

The Examiner objects to claims 14-17 as being of improper dependent form for failing to further limit the subject matter of the previous claim. Claims 14 - 17 have been canceled.

Sections 101 and 112 Rejections

The Examiner rejected claim 18 under sections 101 and 112. Claim 18 has been canceled.

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Section 102 Rejections

## Hanse and Benson

The Examiner has rejected claims 1-3, 6, and 14-17 as anticipated by US 5,691,061 to Hanse and claims 1-2, 6 and 14-17 as anticipated by US 5,370,370 to Benson. Claims 1, 19 and 24 are the only independent claims. Anticipation exists where a single reference teaches, either expressly or inherently, each and every claimed element as interpreted by one of ordinary skill in the art.

Hanse teaches a refractory article having a bore defined by a carbon-free liner. Figure 1 of Hanse shows a typical submerged entry nozzle, including a refractory piece (2) and slag-line sleeve (8). The slag-line sleeve covers only a small portion of the outer surface where the nozzle is adapted to contact slag. The Examiner argues Hanse shows every element of claim 1, in that the slag-line sleeve functions as an insulating coating and a glaze may be applied over the slag-line sleeve. See Hanse col. 2 lines 37-4. Similarly, Benson teaches a refractory article comprising a carbon-free liner. Its specification also describes the use of a slag-line sleeve covering only a small portion of the outer surface. See Benson col. 6 lines 10-13.

Applicants do not believe either reference anticipates the present application and reiterate their reply of June 11, 2003. Additionally, amended claim 1 and new claim 24 require the insulating coating to cover substantially the entire first outer surface. New claim 19 has an insulating coating comprising insulating microspheres. A reference cannot anticipate where it lacks even one element. The slag-line sleeves of Hanse and Benson do not cover substantially the entire first outer surface, nor do they teach an insulating coating comprising insulating microspheres. Hanse and Benson do not

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anticipate independent claims 1, 19, 24 or their dependent claims. Applicants request removal of these 102(b) rejections.

Yamamura

The Examiner has rejected claim 1 and claims 14-17 as anticipated by US 5,908,577 to Yamamura. Yamamura teaches a nozzle having a liner comprising 5-70% cordierite and 1-10% carbon. The liner is described as reducing alumina build-up during steel casting. Yamamura does not mention a "glaze."

The Examiner states, "When a green ceramic is fired, it indeed produces a glassy surface, which is equivalent to producing a glaze." The Examiner has provided no support for this statement, specifically that (1) firing produces a glassy surface or (2) such a glassy surface is equivalent to a glaze. A patent examiner bears the initial duty of supplying factual basis supporting a rejection of a patent application. The examiner must present a *prima facie* case of anticipation supported by references. Here, the Examiner cites Yamamura but does not explain where or how Yamamura teaches the inherent production of a glaze during firing. Applicants do not believe the Examiner has made a *prima facie* case.

In further support of their position, Applicants submit a section 1.132 affidavit that refutes the Examiner's statement. Mr. Benson clearly states Yamamura does not inherently produce a glaze. Mr. Benson also declares that carbon-containing refractory ceramics do not inherently produce a "glaze."

Applicants also reiterate their arguments of Hanse and Benson *supra* and their June 11, 2003 reply. Yamamura does not anticipate amended claim 1 or new claims 19-24. Applicants request removal of this 102(b) rejection.

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103 Rejection

The Examiner has neither removed nor expressly preserved her section 103 rejection for obviousness. Nevertheless, paragraph 19 discusses obviousness in light of Whittemore (US 5,252,526), Sara (US 4,559,270) and Yamamura. The Examiner does not identify any rejected claims, so Applicants assume claims 2-6, which were the subject of a prior obviousness rejection, remain at issue.

Claims 2-6 all depend from claim 1 and are allowable as depending from an allowable claim. As a matter of law, dependent claims cannot be obvious where the independent claim is not. The Examiner must remove her section 103 rejection. Claims 19 and 24 are allowable as explained above, and claims 20-23 are allowable as dependent claims of claim 19.

Regarding the apparent rejection, the Examiner claims the cited references "provide motivation to combine since they are all either to refractory nozzles or to coating for articles." In fact, only Yamamura teaches a nozzle. Whittemore teaches a monolithic refractory article having a dense outer layer and an inner core comprising a refractory foam. Sara teaches an oxidation prohibitive coating, that is, a glaze.

As stated in the Applicants' June 11, 2003 reply and represented here, the Examiner has improperly combined these references to obviate the present application. A *prima facie* case of obviousness exists only when the prior art, alone or in combination, teaches each element of a claim and fairly suggests the combination of such elements to one skilled in the art. Here, the cited art does not teach an insulating coating on the outer surface of an article, or the combination of required elements, or the particular

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configuration taught by the present invention. Further, the cited art provides no basis to combine these references.

Yamamura teaches only a refractory nozzle and does not describe an insulating coating or a glaze. Whittemore describes an insulating core surrounded by a dense outer layer. In the present application, claims 1, 19 and 24 are the only independent claims. Claim 1 and 19 describe the insulating coating forming a second outer surface over top of a first outer layer. Claim 24 distinguishes between an inner surface defining a bore and a second outer surface created by the insulating coating. Both configurations are completely unlike Whittemore in which the insulating foam comprises the core of a refractory article and a dense layer comprises the outer surface. Sara teaches a glaze comprising mullite and a carbide of silicon or boron. An insulating coating is not present.

Reconstructing the present invention using pieces of prior art is impermissible absent some teaching or suggestion to combine elements of the prior art.<sup>1</sup> The Examiner may not choose pieces of the prior art to obviate the present invention. The cited art does not suggest their combination and the Examiner provides no motivation to combine them. Yamamura does not mention a glaze, as in Sara, or an insulating coating or microspheres, as in Whittemore. Sara is unconcerned with insulating coatings or microspheres. Whittemore teaches a refractory mix for a non-carbonaceous brick, which lacks carbon. A carbon-free brick does not even need an "oxidation prohibitive coating," i.e., a glaze,

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<sup>1</sup> "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that '[o]ne cannot use hindsight reconstruction to pick an choose among isolated disclosures in the prior art to deprecate the claimed invention.'" *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q. 2d 1780, 1784 (Fed. Cir. 1992) (Quoting *in re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q. 2d 1596, 1600 (Fed. Cir. 1988)).

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as taught in Sara and the present application. One of ordinary skill in the art would recognize the uselessness of glazing an article of Whittemore.

Even assuming the cited art includes some suggestion to combine their disparate elements, the Examiner has not identified any inference to combine the separate elements into the configuration taught by the pending claims. Applicants have identified the best prior art, that is, a carbon-containing refractory piece having a glaze covered by an insulating coating. As explained in the specification, this configuration has proven inferior to the present invention in which the glaze is applied over the insulating coating. Certainly, the cited art does not suggest the configuration of the present invention, which is described by claims 2-6 and new claims 19-24.

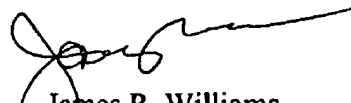
For all of the above reasons, the Examiners rejection for obviousness cannot be sustained. Claims 2-6 and 19-24 are allowable over Yamamura, Sara and Whittemore.

In light of the above, Applicants respectfully submit that claims 1-6 and 19-24 are patentable over the prior art. Early and favorable action is earnestly solicited.

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Respectfully submitted,



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